

DEPARTMENT of ENVIRONMENTAL SERVICES
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: POWDER MILL POND	Lake Area (ha):	176.04
Town: HANCOCK	Maximum depth (m):	5.3
County: Hillsborough	Mean depth (m):	1.0
River Basin: Merrimack	Volume (m ³):	1818500
Latitude: 42°59'34" N	Relative depth:	0.3
Longitude: 71°55'30" W	Shore configuration:	3.49
Elevation (ft): 675	Areal water load (m/yr):	112.9
Shore length (m): 16400	Flushing rate (yr ⁻¹):	109.3
Watershed area (ha): 37296.0	P retention coeff.:	0.20
% watershed ponded: 3.4	Lake type:	artificial

BIOLOGICAL:

3 February 1998

22 July 1997

DOM. PHYTOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	DINOBRYON 40%
	#2		SYNURA 20%
	#3		MELOSIRA 15%
PHYTOPLANKTON ABUNDANCE (units/mL)			
CHLOROPHYLL-A (µg/L)			10.78
DOM. ZOOPLANKTON (% TOTAL)	#1	SPARSE - NO DOMINANT	KERATELLA 53%
	#2		BOSMINA 20%
	#3		NAUPLIUS LARVA 9%
ROTIFERS/LITER		14	1017
MICROCRUSTACEA/LITER			546
ZOOPLANKTON ABUNDANCE (#/L)		14	1591
VASCULAR PLANT ABUNDANCE			Common/Abun
SECCHI DISK TRANSPARENCY (m)			1.2
BOTTOM DISSOLVED OXYGEN (mg/L)		13.5	0.2
BACTERIA (E. coli, #/100 ml)	#1		2
	#2		
	#3		

SUMMER THERMAL STRATIFICATION:

weakly stratified

Depth of thermocline (m): None
Hypolimnion volume (m³) : None
Anoxic volume (m³) : 500

CHEMICAL:

Lake: POWDER MILL POND

Town: HANCOCK

	3 February 1998		22 July 1997		
DEPTH (m)	1.0		2.0		4.0
pH (units)	6.0		6.6		6.3
A.N.C. (Alkalinity)	3.7		5.4		5.5
NITRATE NITROGEN	0.10		< 0.05		< 0.05
TOTAL KJELDAHL NITROGEN	0.30		2.40		0.50
TOTAL PHOSPHORUS	0.019		0.040		0.036
CONDUCTIVITY (μ mhos/cm)	79.2		69.2		69.9
APPARENT COLOR (cpu)	33		70		75
MAGNESIUM			0.72		
CALCIUM			2.8		
SODIUM			8.8		
POTASSIUM			0.74		
CHLORIDE	16		14		14
SULFATE	5		3		4
TN : TP	21		60		14
CALCITE SATURATION INDEX			3.5		

All results in mg/L unless indicated otherwise

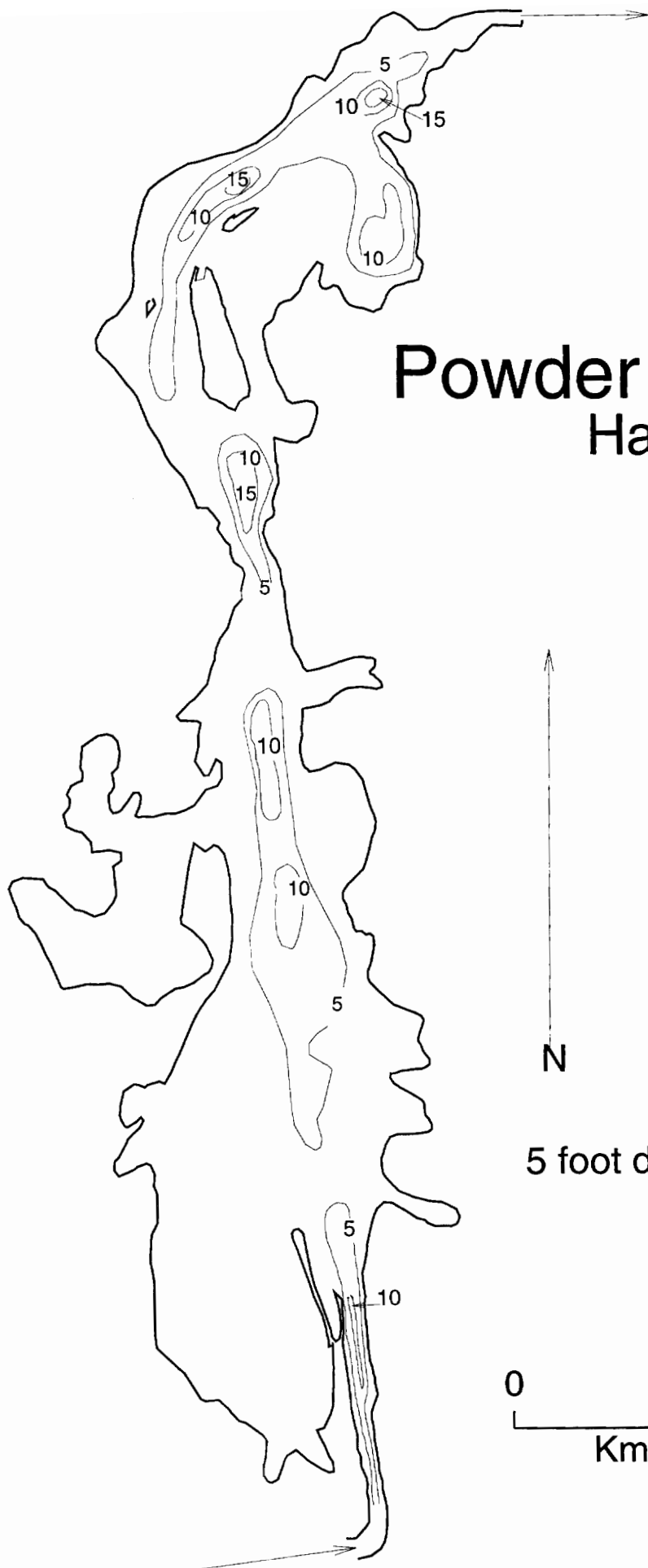
TROPHIC CLASSIFICATION: 1997

D.O. S.D. PLANT CHL TOTAL CLASS

**	4	4	2	10	Eutro.
----	---	---	---	----	--------

COMMENTS:

1. A previous survey conducted in 1985 also classified the pond as eutrophic. The chlorophyll value in 1997 was approximately 1/3 the 1985 value. That reduction in chlorophyll was sufficient to remove the pond from the 303(d) list of impaired waters.
2. This is a shallow, weedy impoundment of the Contoocook River; the dam is operated by Monadnock Paper Mills, Inc.
3. The upper summer sample for Total Kjeldahl nitrogen was unexplainably high. The high value was not present at the lower level, and apparently was not associated with organic nitrogen since the phosphorus value was not abnormally high.
4. The zooplankton were very abundant, indicating that the high primary productivity was moving up the food chain.

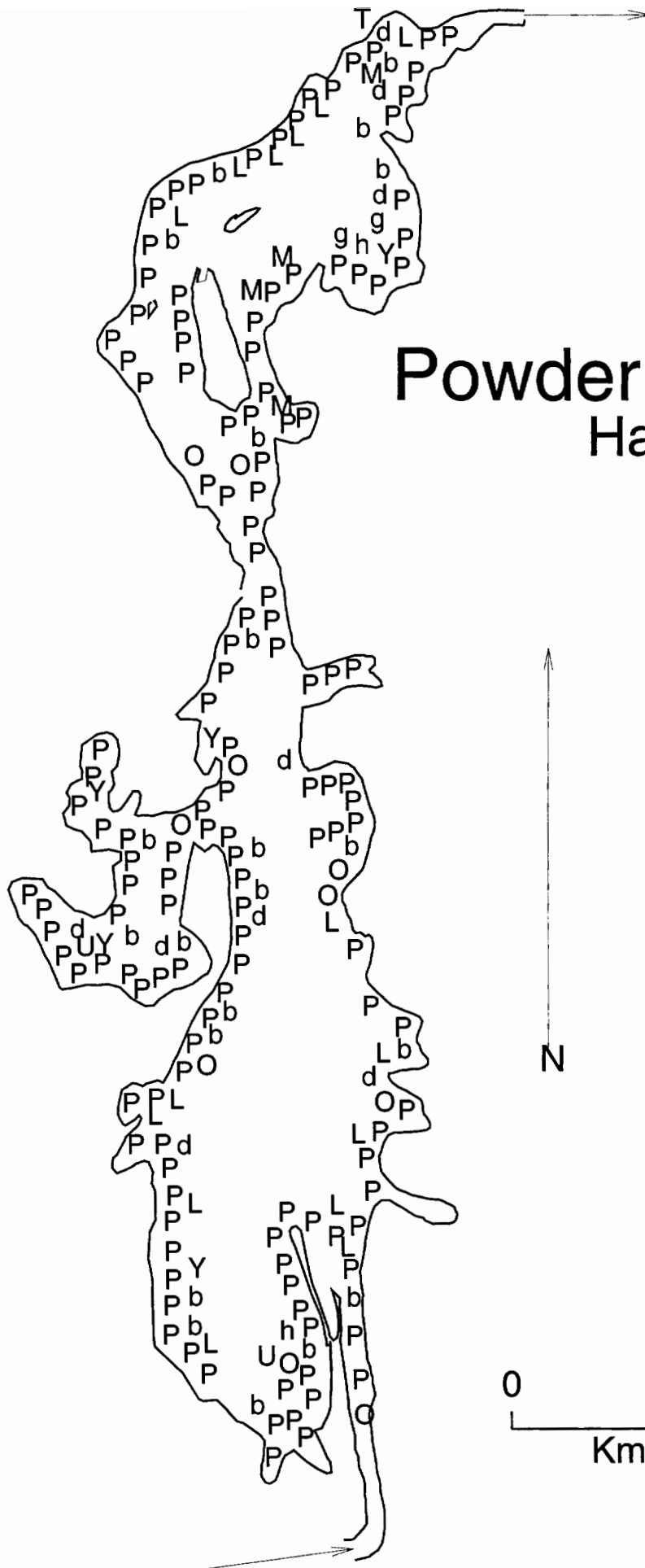


Powder Mill Pond Hancock

5 foot depth contours

0 0.5
Km

[illegible]



Powder Mill Pond

Hancock

[illegible]